REMARKS

I. Introduction

In response to the Office Action dated November 21, 2008, claim 32 has been amended and claims 33 and 34 have been added. Claims 32-34 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Claim Amendments

Applicants' attorney has amended claim 32 and added new claims 33-34 as indicated above. These amendments are fully supported by the specification as filed and introduce no matter. As discussed below, syngeneic tumors encompass, by definition, genetically identical tumors such as autologous tumors. Methods directed to attracting T lymphocyte or mature host dendritic cells to a site of an autologous lung cancer tumor in a mammal are disclosed for example at page 17, lines 12-31 and in Example 4 at page 72. As noted at page 16, lines 29-31, the term "mammal" (as recited in claim 32) encompasses humans.

III. Rejection Under 35 U.S.C. §101

In paragraphs (3) of the Office Action, claim 32 was rejected under 35 U.S.C. §101 as not being supported by either a specific and substantial utility or a well established utility. This rejection is predicated on the belief that the utility encompassed by claim 32 requires the transplant of viable tumor cells into a human in order to establish a syngeneic tumor in the individual. In this rejection, the Patent Office asserts that the claimed invention fails to meet the requirements of 35 U.S.C. § 101 due to the interpretation of the term "syngeneic", in claim 32. This rejection notes, for example, that "it would be unethical, if not forbidden by law, to transplant viable tumor cells (syngeneic or otherwise) into a human to establish a syngeneic tumor in the individual" (page 6 of the Office action).

Applicants respectfully thank the Patent Office for identifying this issue with claim semantics (in particular the use of the term "syngeneic") that resulted in this rejection. In response, Applicants first respectfully point out that Applicants merely intend this term to be used in accordance with its art accepted meaning, for example, the definition of this term that is found in

Merriam-Webster's Medical Dictionary, © 2002 Merriam-Webster, Inc., namely "**genetically identical** especially with respect to antigens or immunological reactions" emphasis added, (see, e.g. the definition provided in Attachment A). Applicants further point out that those of skill in the art would agree that autologous tumors are "genetically identical" and the Patent Office has cited no technical disclosure that states that autologous tumors are not "genetically identical especially with respect to antigens or immunological reactions" (and therefore are to be excluded from the definition as found in the attached excerpt from Merriam-Webster's Medical Dictionary). Nonetheless, in order to overcome this rejection and further the prosecution of the instant application, the language of claim 32 has been amended to replace the term "syngeneic" with the term "genetically identical" and in this way overcome the purported semantic ambiguities relating to this term. In addition, in regards to the term "spontaneous" in claim 32, Applicants point out that those of skill in the art would not agree with the Patent Office's belief that "it is submitted that no tumors arise "spontaneously" in humans". Instead, those of skill in this art characterize many tumors in humans as spontaneous cancers. This is confirmed, for example scientific journal articles that expressly recite "spontaneous lung cancers", for example the spontaneous cancers that are discussed and characterized in Leenhouts, Radiat Environ Biophys 1999 38(1): 57-71 (the abstract of which is provided as Attachment B).

In order to further the prosecution of the instant application, new claim 33 uses the term "autologous" rather than syngeneic, a term the Patent Office repeatedly asserts is appropriate. Applicants disclosure explicitly recites methods using "autologous" cells at page 58, lines 18-29 and original claim 31 and further provides working examples of using recombinant SLC in methods to attract T lymphocyte or mature host dendritic cells to a site of an autologous tumor in a mammal in Example 7 at page 75. New claim 34 recites a "human" mammal.

Applicants' specification teaches that when genetically identical dendritic cells in a mammal are transduced with an SLC from that mammal and then placed at the site of a tumor in the mammal, the SLC produced by these cells induces the chemotaxis of T lymphocyte and/or mature host dendritic cells to a site the tumor (see, e.g., the spontaneous cancer models disclosed in Examples 8 and 9 and the syngeneic cancer model disclosed in Example 10). Applicants' specification further teaches that this SLC mediated chemotaxis of T lymphocyte and/or mature host dendritic cells to a site the tumor results in a marked reduction in tumor burden in the host

(see, e.g. the disclosure presented in FIG. 3 and Examples 8-10). For these reasons, the methods recited in claims 32-43 have a specific, substantial and credible asserted utility. Consequently, the rejection under 35 U.S.C. § 101 should be withdrawn.

IV. Rejection Under 35 U.S.C. §112

A. Rejection under 35 U.S.C. §112, first paragraph.

In paragraphs (8)-(9) of the Office Action, claim 32 was rejected under 35 U.S.C. §112, first paragraph.

In accordance with M.P.E.P. 2164.07, with the 35 U.S.C. §101 rejection, the Patent Office correspondingly asserts that because the claimed invention is not supported by either a specific, substantial and credible asserted utility, one skilled in the art clearly would not know how to use the claimed invention, and therefore this invention is not enabled (resulting in a rejection under 35 U.S.C. §112, first paragraph).

As noted above, claim 32 has been amended (and new claims 33 and 34 drafted) to specifically exclude those methods that encompass the transplant of non-autologous cancer cells into a human. A rejection to claim 32 as amended hereinabove is inconsistent with case law and PTO guidelines for making such rejections because, for example, there is no evidence to show that one of ordinary skill in the art would reasonably doubt the asserted utility. M.P.E.P. §2164.07 notes that Office personnel should not impose a 35 U.S.C. 112, first paragraph, rejection grounded on a "lack of utility" basis unless a 35 U.S.C. 101 rejection is proper. In this context, a factual showing must be provided if a 35 U.S.C. 112, first paragraph, rejection is to be imposed on "lack of utility" grounds. Specifically, M.P.E.P. §2164.07 states that only after the examiner has provided evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility does the burden shift to the applicant. As noted above, in the instant case, there is no evidence that one of ordinary skill in the art would reasonably doubt the asserted utility. Finally, one of skill in the art would agree that the multiple in vivo animal models of lung cancer that are disclosed in the specification reasonably correlate to conditions such as lung cancer. See e.g., *In re Brana,* 51 F.3d 1560, 1566, 34 USPQ2d 1436, 1441 (Fed. Cir. 1995). Consequently, any rejections under 35 U.S.C. §112, first paragraph that are predicted on the utility/enablement of the claimed methods should therefore be withdrawn.

B. Rejection under 35 U.S.C. §112, second paragraph.

In paragraph (8)-(9) of the Office Action, claim 32 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention (due to the use of the term "syngeneic").

Applicants' amendments to claim 32 render this rejection moot.

V. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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ATTACHMENT A

Medical Dictionary

Main Entry: **syn·ge·ne·ic**
Pronunciation: "sin-j&-'nE-ik
Function: *adjective*
: genetically identical especially with respect toantigens or immunological reactions <*syngeneic* tumor cells> *syngeneic* mice>
—compare ALLOGENEIC, XENOGENEIC

ATTACHMENT B

Radiat Environ Biophys. 1999 May;38(1):57-71.

Radon-induced lung cancer in smokers and non-smokers: risk implications using a two-mutation carcinogenesis model.

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Three sets of data (population statistics in non-smokers, data from an investigation of the smoking habits of British doctors and a study of Colorado uranium miners) were used to analyse lung cancer in humans as a function of exposure to radon and smoking. One of the aims was to derive implications for radon risk estimates. The data were analysed using a two-mutation radiation carcinogenesis model and a stepwise determination of the model parameters. The basic model parameters for lung cancer were derived from the age dependence fit of the spontaneous lung cancer incidence in non-smokers. The effect of smoking was described by two additional parameters and, subsequently, the effect of radon by three other parameters; these five parameters define the dependence of the two mutation steps on smoking and exposure to radon. Using this approach, a consistent fit and comprehensive description of the three sets of data have been achieved, and the parameters could, at least partly, be related to cellular radiobiological data. The model results explain the different effect of radon on non-smokers and smokers as seen in epidemiological data. Although the analysis was only applied to a limited number of populations, lung cancer incidence as a result of radon exposure is estimated to be about ten times higher for people exposed at the age of about 15 than at about 50, although this effect is masked (especially for smokers) by the high lung cancer incidence from smoking. Using the model to calculate the lung cancer risks from lifetime exposure to radon, as is the case for indoor radon, higher risks were estimated than previously derived from epidemiological studies of the miners' data. The excess absolute risk per unit exposure of radon is about 1.7 times higher for smokers of 30 cigarettes per day than for non-smokers, even though, as a result of the low spontaneous tumour incidence in the non-smokers, the excess relative risk per unit exposure for the smokers is about 20 times lower than for the non-smokers. This prediction could have serious consequences for the transfer of risk estimates between populations. Although the solution of the model presented here is not unique but dependent on the model assumptions, the predictions and risk implications are sufficiently supported to justify a thorough investigation of the applicability of the model to other radon data sets.

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